May be ~~destroyed~~ preserved

App F IX 4

Previous References

Rel 83-34 (1-5)
" 20-35 (9 & 11)

193 5-6 (Rel.)

File No 172-35
Serial Nos 4, 5, 6
7, 8 & 9

Later References

Rel 166-36-1

GENERAL AND REVENUE SECRETARIAT

Serial Nos 6-x

Part B for July 36

SUBJECT

Report on the Condition of the Malaria in Mandya Town & the Proposals for Controlling the disease

5(7)

To The Deputy Commr, Mysore District

WD 01965—GPB—15 000—7-~~34~~36c D 530 of 16-7-36

Request that necessary action may be taken & Co-operate

Health Officer

W. Mavinkurve
12/8/36

Prevention of malaria in Mandya

General and Revenue Secretariat | File No P H 38 of 1935 | [App F III—2

P H 38-35-9

GOVERNMENT OF MYSORE

DEPARTMENT OF HEALTH

GENL & MIS BRANCH 13 DEC. 1935 GENL & REV SEC 1935

DEPUTY OFFICE 16 DEC 1935 No. 3903

GENERAL SECRETARIAT 13 DEC 1935

FROM P Parthasarathy, Esq, L M S
B S Sc [redacted]
L R C P & S, D T M D P H (LOND)
Director of Health in Mysore
Bangalore

To

M Venkatesa Iyengar, Esq, M A
General Secretary to the
Govt of Mysore,
Bangalore

Dated December 11, 1935

Despatched

Received

SECOND MEMB OF GOVT 13 DEC 1935 No 4597

General No C 1097-3

Enclosure No Report

Subd for perusal
13/12
13/12
Sec'l member
Dewan Sir,

I have the honour to forward herewith for favour of information of Government, a report on the condition of malaria in Mandya town, with recommendations for carrying out measures to prevent malaria The report has been sent to the President of the Municipality and

H. T.

Subd with two other reports recd from the Dewan's office with the Dewan's D.O. dated, to the effect that permanent staff should be established & work after

NOTE—Contn Sheet

W D 03594—GPB—30 000—18 7 35

Prevention of malaria in Kisumu Town

File No 8/4 38 of 1935 — General and Revenue Secretariat

after the health of the town, if it is not to become a hot bed of malaria & that early action should be taken on all the points referred to in the Director of Health's note

(1) There is at present a Rural Health Unit with its head quarters at Kisumu sanctioned in Feb 1929 — 7C2

(2) There is an establishment consisting of one Sub Asst Surgeon & 6 compounders sanctioned in Jan 1935 for the destruction of Culicine in the Downcanal area The question of continuing the establishment for a further period of one year from 1/1/1936 is separately under consideration (D/MO 3103 & Genl 16/12/35) — 7C x

3) A cooperative programme ~~for the~~ with the Rockfeller Foundation for control of malaria in the Downcanal area had been sanctioned for one year from 1/1/1935 & after 1/1/36 upto ~~to~~ 1/7/38 at least Govt have agreed to bear the whole cost. The question of the fence to meet the cost on afe after alone during the ~~remaining~~ second half of the current year is separately under consideration

2)

Prevention of malaria in Mandya Town

3125 / 3197

General and Revenue Secretariat | File No PH 38 of 1935 | [App F 4H—2]

Serial No

1) It is ~~forwarded~~ for consideration whether appointment of a permanent staff as referred to in the Despatch is to be attached to any of the three units referred to above or whether it is to be part of the establishment of the Municipality. The Director of Health may, if agreed, be requested to submit proposals in consultation with the Dy. Commr. Mysore

D H & A 19/12

3) The above note is for perusal. As the question is one pertaining to Mandya Town this will have to be dealt with in the L & G Br as the Mandya Town Municipality will have to take action to find funds & to entertain necessary Estt.

19/12/35

4) P W D has also to be consulted with regard to the execution of the Lands etc required

Gen Secy)

Secd Member)

5) Put these to take action accordingly

GENERAL BRCH
19 DEC 1935
838
R V

OFFICE OF THE SECOND MEMBER OF COUNCIL
20 DEC 1935
No. 4299

NOTE—Contn Sheet

WD 0J594—GPB—30 000—13-7 35

Prevention of malaria in the Mandya Town

3197 3090/1

File No P 14 of 193 General and Revenue / Secretariat 33

PASON

6 Subd If appd, this file will now be transferred to the L S G Branch for necessary further action as per paras 3 & 4 above

1 1 GG
6/1/36

7 Yes 2 6/1/36

L S G Br)

2 The report now being dealt with in this file was submitted by Dr Kaveri, Ex Director of Health on Dec'r 1934 and action was taken thereon and about the water supply & drainage schemes to the Mandya Town according to the Dewan's minute at 1 (a) & (b)

Rec'd 7/1 NZ NZ & R The one now sent is only a copy of that rec'd from 8/1/36

1 (a) & (b)

3 In regard to the breaching of the Mandya tank and, the Chief Engr was addressed in accordance with the Dewan's minute therein (Flag E) and the report of the Chief Engineer is contained in Flag D placed below But in this case, any Mandya tank was noted to and it is for orders if the Chief Engr should be addressed in regard to other tanks mentioned in the report, as ordered at para 4 supra

L 5507/34-35

Hosahalli Kallahalli

Prevention of Malaria - Mandya Town

3090 L—

General and Revenue Secretariat | File No | of 193 | [App F NI—2

Serial No	
	1D A draft letter to the D.C Mysore Distt, communicating the orders of the Dewan (vide flag T) is submitted for approval on the orders
	for 8/1/36 Dev Secty) MGI
	11 M may be added
	12 Mee 11/1/36
1	To The D.C Mysore Dist No L 5990 dated 16/1/36 Requests him to submit suitable proposals for appointing a paid permanent staff for anti-malarial work in Mandya Town
	To The Director of Health No L 5991 dt 16/1/36 Forwarding a copy of D.L 1

C OF TH SECOND M ER OF COUNCIL 16 JAN 1936 No 5314

4462/811

1935 CTT

NOTE.—Contn. Sheet.

W D G 5694—G P B—80,000—12-7-35

Anti malaria Operations - Mandya

4 115

File No 172 of 1935-36 General and Revenue Secretariat

From

The Deputy Comr, Mysore Dist

No Dy 2386/35-36 Dt 5 3 36

Forwards a note of the Presidt Mandya Taluk Bd & a resolu of the Tk Bd in regard to the anti-malaria measures to be adopted in the Insp't reports thereon & asks to the entertainment extra staff etc as requested therein

It is for orders if the file may be sent officially to the Director of Health for opinion in regard to the proposals outlined in the note refd to above & the entrustg of the work to the Health Officer, Rural Health Unit, Mandya & the entertainment of the staff as recommended by the D C

Dept Secy 13

OFFICE OF THE DIRECTOR OF HEALTH & MEDICAL SERVICES
26-3-36
Bangalore
G H N
File No C 1092-9
Despatch No

Memo No 7 forwarded with compliments to the Director of Health for favour of opinion very early

By order

Asstt Secy to Govt

for Secy to Govt

for Development Secy

LC O 133 D 14-3

Serial No

Ll O C1092-10
26/3/36

17

Retransmitted with compliments to the Secretary to Government, Development Department

1 The Mandya tank should be breached and I consider that it is very desirable as suggested by the Revenue Sub-Division Officer that wet cultivation under the tank is completely prohibited

2 The Hosahalli tank should be breached Since drawing up of the last report it has been found that Hosahalli tank is a source of danger and conditions both in the new extension and the Adikarnataka colony have grown worse

3 The abandoned channel from the 8th distributory next to the Adikarnataka colony has to be completely filled in as this otherwise holds water for a long time after the rains and is a source of danger

4 I am not in agreement with the proposal of the Deputy Commissioner, Mysore District for employing the two extra hands in the Rural Health Unit for anti-malaria work in the municipality This staff has to be under the municipality and under the control of the Health Officer, Rural Health Unit, Mandya

18 Further, it is desirable that the Health Officer, Rural Health Unit, Mandya be made a member of the Mandya Municipality, if necessary in place of the Assistant Surgeon, Mandya as this will give him a better opportunity to work with the municipal council He may further be entrusted with the general Health administration of Mandya town

Office Sheet

WD 03594—GPB—30 000—18 7 35

Anti malaria Measures, Mandya

File No 172 — 4113/1 of 193 5-36 General and Revenue Secretariat

5 As regards the proposal to meet half the cost i e , Rs 250/- for the purchase of Paris Green for the antimalaria work in the municipality, no funds are available in the budget of this Department for the purpose Further, this will set up a very inconvenient precedent and it will be impossible for Government to give grant for such recurring expenditure to Local Bodies

S Subramanya

Director of Health

BLVS/25-3

To Subject for orders The Revenue Secy & the Chief Engr may perhaps be consulted in regard to the breaching of the two tanks viz Mandya Tank & Hosahalli Tank, (It has to be decided as to who should pay the charges for filling up the abandoned channel from the 8th distributary ref 2 from the above note) from 27/8/36

Secy to Govt 28/3

Secy to Govt 29/8/36 to PWD 30/8/36

6237/35/3

7595-

The arrangements made to draw off water from the Mandya tank from time to time by means of an

4115

[redacted] & Revenue Secretariat | File No | of 193

Serial No

automatic syphon have not, it is learnt, proved to be effective as a means of preventing the breeding of mosquitoes. The question of drain breaching the tank or (as suggested by the Diwan) of reducing its capacity was water-spread has therefore to be seriously considered. This part (item 1) as well as items 2 & 3 may be referred to the P.W.D. for further examination and necessary action.

93 As regards anti-malaria work, I agree with the Director of Health that this should be placed under the control of the Health Officer Rural Health Unit Mavoya — the entire cost (staff, pump, grant etc) being borne by the Municipality.

94 The Health Officer may also be nominated as a Municipal Councillor if possible.

MM
2/4/38

95 Two drafts are putup for approval. The question of appointing the Health Officer as a member

NOTE—Cont Sheet.

Anti malaria works Mandya.

4115

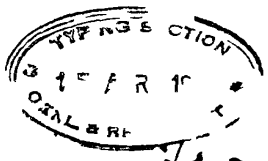
Mandya dam Mt be will be
separately examined after receipt of
drafts putup

fna my
8/4/36.

26 The drafts may be sent
Dwt Secy) to me 8/4
my
27 AW 11/4

6491
9/4

28 Issue fm 1574



To the Deputy Comr, Mysore Distt
No Z 7926 dated 20 4 1936

In forwarding herewith the proposals for
the anti malarial works in Mandya town,
have not been accepted by the Director of
Health and requests him to submit
detailed proposals for the work in the
Mandya dam, being taken up at the
cost of the municipality

To the Director of Health
No Z 7927 Dt 20 4 36
Fds a copy of cl 3

To the Secy K"RS works
No Z 7928 Dt 20/4/36
Fds an extract of paras 1 to 3 of Directors
dated 9.4.36 from Deputy Comr Mysore
To the Dir. of Health
No. 7926 dt 20/4/36
Fds a copy of above letter

Anti malaria operations - Mandya Town

4115

General and Revenue Secretariat | File No 172 of 1935-36 | [App F III—2

Serial No

(1) The Mandya Town Ml Bd was reconstituted for a term of three years in Govt No 4179/Ml 50-33 21 dated the 15 Dec 1933 with effect from 1st January 1934. It has to be reconstituted again from 1.1.1937 i.e. 8 months hence.

(2) The proposal is to appoint the Rural Health Unit Officer, Mandya as a member of the Mandya Town Ml Bd in place of the Assistant Surgeon in charge of the Dispy at the place (vide paras 18 & 24 of the notes supra). It is for orders if a Notn may be issued accordingly.

(3) In case it is considered undesirable to disturb the present arrangement for 8 months more, it is still possible to utilize the services of the Rural Health Unit Officer by appointing him a member of the Health Committee under sec 30 of the Regn and also a chairman thereof under 31 (3) thereof. This is submitted for orders.

B

(Please see also section 16 (a) (b) of the Ep & M Regn

NOTE—Contn sheet

WD 03594—GPB—30 000—12-35

25/4/36

32 Please put up Muslim name for formation of Town Improvement Committee for Mandya

25/4

Anti-malaria Operations - Myomeci

4115

4115

File No - 172 of 1935 36

General and Revenue Secretariat

33 The file relating to the constitution of a Committee for Purulia is missing. It does not appear therefrom that the Rural Health Unit Medical Officer is a member of that Committee at present.

Mal 33-34-[illegible]

Sag 27/4/36

SW 28/4

34 With reference to A on the last page please see II Member's minute in para 24. The intention appears to be to nominate the Health Officer to the MCC in addition to the Asst Surgeon, if possible. According to Part C of Notification no L4179 Dy 19.12.33, there are only two seats for Ex-Officio members, one of which is now given to the Asst Surgeon & the other to the Executive. It is not possible to add the Health Officer as an Ex-Officio Councillor, without raising the number of elected Councillors from 15 to 18, please see Sec 9(2) of the Town Unions Regn. It is, however, possible to replace the Asst Surgeon by the Health Officer if such a course is considered desirable, and if this is done the Asst Surgeon will have to be asked to resign & the Health Officer appointed in the vacancy.

35 In regard to the suggestion at B, it is not clear if a Health Centre has been formed by the MCC already or not, who its members are & what information regarding this will be called for from the

Prevention of Malaria - Mandya Taluk

4115-V 5277

General and Revenue Secretariat — File No 172 of 1935-36 [App F III—2

Serial No	
	Dr Cow, along with his opinion as to the inclusion of the Health Officer in the Committee if he is not there already
	Dr Stacy) 36 Mem 9/4
7087/15	3 A draft letter to Mr Knapp Knapp
	for sw 5/5/36 Dr Stacy) 38 Mem 6/5 Mem 5/5
7171/5/1	
	4 Memo Deputy Comr, Mysore no 2849/2 Dy 8/5/36 calls for further information
	5 from the Deputy Comr, Mysore no D3 23861/31-36 Dy 13/5/36 submits proposals for the establishment & other items of expre- for the anti malaria work in the Mandya Taluk. 1743, 18, 1923
	6 Subs for orders (refer para 5 above)

NOTE—Contn Sheet

WD 03594—GPB—30 000—13 7 35

for sw 16/5/36

TYPING ION 7 MAY 1936 GEN. & REV. SECTT.

Intimation regarding Measures to be taken to

V 50 86

File No 772 of 1935-36 General and Revenue Secretariat

4) A copy of the Budget Estimates of the Mess for 1936-37 may be sent to us for scrutiny

4) The Budget estimates of Mandya Town Mess for 36-37 received from the Dy Commr are placed below as duplicate copy has been received

Mess 18/5/36

4) The expenditure on guesthouse (Repairs of the extra freedman Rs 500 for meeting the cost of Paris Green etc) is proposed to be met from the surplus balance of the Mess for 1936-37 ; the budget estimate for which shows a closing balance of Rs 25,345

4) As the budget of the Mess for next year has not been sanctioned yet, the necessary provision for the expenditure proposed by the Mess may be included in the budget when sanctioned

4) Please put up a draft G.O. sanctioning the proposals for consideration

Draft G.O. at Sub-2 forwarded

Mess 18/5/36

Dy Secy

Secretariat (1) 22/5

Mess 26/5/36

Mess 18/5/36 Dy Commr Mandya

This will be dealt with separately later on

Mess 18/5/36

SECRETARIAT 91147

7687

22 MAY 1936 3 REV

Mess 26/5

Issued

5977 1930

Public Works Secretariat — File No 172 of 1935-36

Serial No 6

To

The Deputy Commr, Mysore Dist

I am directed to forward herewith a copy of the letter noted in the margin from the Director of Health Services and to request that the proposal contained therein may be submitted to the Municipal Council at Mandya for consideration.

Encl 3 Rll 21/7/36
Rtd herewith the Dy Mysore
from
11/8/36
MV

From

The Deputy Commr, Mysore Dist

No D3 2386-/35-36 Dt 27/6/36

Furnishes the information called for in Rl 4 supra and states that the Health Officer, Rural Health Unit, Mandya may be appointed as a member of the Health Committee of the municipal Council at Mandya. Submitted with reference to paras 30 to 38, of the Rules regarding disinfection 18 & 24 of the Rules supra.

It is reported that the Health Officer, Rural Health Unit may be appointed as a Memb

Note.—Contn sheet

WD 554—GBPM—5 000—21 10-35

Anti malaria Operations – Mandya Town

of the Mandya Town M L Co-opt (the Health Committee)
under Sec 30 of the Municipalities Act

It is for orders if this arrangement may be approved – till the Mandya Town M L Co is re-constituted in January 1937

Sd/ Refer paras 18, 24, 34 to 39 supra

3/7/36

CERTIFIED TO BE A TRUE COPY OF A RESOLUTION PASSED BY THE SECOND MEETING OF THE COUNCIL HELD ON THE 7 MAY 1936 AT 11 A.M.

53 The object appears to be to secure the advice of the Health Officer in matters pertaining to the Health of the town and this will be attained even if the Health officer is co-opted as a member of the Health Committee constituted by the Mandya Town Municipal Council under Sec 30 of the Town Municipalities Act

54 The proposal of the Deputy Commissioner may perhaps be approved for the present.

4/7/36

Sd/ 7th January 1937

Secretariat

7/7/36

9/7/36

9/7/36

13/7/36

To record, approve Dr
Sd/- 14-7-36
Reply to be sent requesting action may be taken to accept the Health Officer

TYPING SECTION 14 JUL 1936 GEN & REV SECTT

20/7

DEWAN'S OFFICE
16 DEC 1935
No

D.O.No.F 1092-6 Office of the Director of Health in Mysore,
Encl one Report
Bangalore, dated December 11, 35

GENL & MIS BRANCH
16 DEC. 1935
GENL SECY

Dear Mr Noronha,

With reference to your D C No dated 9th December 1935, I am sending today to the President of Mandya Municipality a report on the condition of Malaria in Mandya town with proposals for controlling the disease I have sent a copy of the same to the Deputy Commissioner, Mysore District and also a copy to the General Secretary to Government for information

I am also enclosing a copy of the report and request you to kindly submit the same for the kind perusal of the Dewan

Yours sincerely,
O Bangalore

M L N Charles Noronha Esq , M A ,
Private Secretary to Dewan
Mysore, Bangalore

BLVS

MALAVALLI TOWN

Mandya is one of the important towns along the Mysore Bangalore road about 25 miles from Mysore City. It has a population of about 4,000 and is rapidly growing in size as also in importance with the development of the Irwin Canal area. A number of new offices have recently been located in this town and with the advent of the Sugar Factory just outside the municipal limits, a large mixed population from all parts of South India and parts of the Bombay residency has been imported.

The present town includes the old town proper and the existing extension. With the increase in population and importance of this place the town is being widely extended on either side of the present extension. The old town is very heavily congested and is the centre of all business activities. Immediately adjacent to the town on the western side is a big but shallow tank which now remains full all the year round. The waste weir halla runs just behind the town, south to north and later joins the Pattabhalla. There is no adquate drainage in the old town and the surface storm water drains are in a state of very bad repair. Adequate drainage by means of surface drains is under construction in the present extension.

There is no pipe water supply in the town. There are a number of surface wells both in the old town and the extension. The water in most of the wells is brackish. Almost every house has a well and a new well is being sunk with each new building. A large number of the town residents use the water from a pond next to the Rural Health Unit office for drinking purposes.

The level of the subsoil water is quite high and ranges from almost 3 ft. in the old town next to the tank, to about 40 ft. in the extension. The subsoil water level is very

much higher generally in the old town than in the extension on account of the proximity of the tank for onething and perhaps due to the higher elevation of the extension.

RAINFALL.

The average rainfall in this area is about 26 inches. The rainfall is derived from both the South- east and North-East monsoons, the season of the North-East monsoon from October to December contributing a greater share.

A statement giving the distribution of rainfall by months is given in Table I.

Table I.

	1929		1930		1931		1932		1933		1934	
	I.	c.	I.	c.	I.	c.	I.	c.	I.	c.	I.	c.
January	-	-	-	60	-	-	-	-	-	-	-	20
February	1	23	1	19	-	-	1	54	-	-	-	65
March	-	-	-	-	-	74	-	-	-	-	-	-
April	7	83	1	1	2	8	1	57	3	36	2	40
May	2	35	8	69	2	66	6	71	8	47	2	6
June	1	10	1	28	-	40	1	-	-	72	1	80
July	-	32	-	51	-	85	-	74	3	96	1	28
August	1	22	-	30	-	-	6	39	6	56	-	40
September	6	10	4	10	5	78	1	6	3	49	1	95
October	3	85	10	69	-	75	11	19	9	11	9	28
November	3	71	3	45	7	38	3	51	-	-	-	-
December	1	8	-	56	-	86	-	-	1	4	-	-
T o t a l	29	49	31	18	21	60	33	71	36	61		

Climate.

The whole of this tract is hot and dry. With the advent of wet irrigation all the tanks are kept full throughout the year and this is likely to have influenced the humidity, making conditions more favourable for the transmission of malaria.

Previous History of Malaria.

The whole area which has now come under the Irwin Canal

Irwin Canal tract was quite dry and almost free from malaria. The people were generally well-built and quite healthy. A spleen survey of this tract in 1929 showed spleen rates from 0-5 in most villages and just alittle over 10 per cent in a few villages, chiefly due to local conditions. But with the start of wet irrigation, the incidence of malaria in this tract has gone up considerably and the Nandya town is virtually surrounded by an immense reservoir of human malaria Parasites. Nandya town had a spleen rate of 4.3 in October 1932 and distributed by blocks the spleen rates showed small variations in the differe t blocks. The details of the spleen rates by blocks is given in table II.

Table IIa

Spleen Rates by Blocks in Nandya Town (1932).

Blocks		Total.	Neg.	Spleen size					Percen
				p	1	2	3	4	
I	Block(Brahmin St)	80	83	2	1	-	1	-	3.3
II	Block(Vokkaliga Colony)	52	46	4	1	1	1	-	11.5
III	Block(Jain St)	50	48	-	2	-	-	-	4.0
IV	Block(Mosque site)	45	43	1	1	-	-	-	4.4
V	Block(A.K.Colony)	90	90	-	-	-	-	-	0.0
T o t a l		327	313	7	6	1	1	0	4.3

A regular malaria survey of Nandya town was commenced on the 13th November and lasted till the 21st. During the survey, all the anopheline breeding areas were located and the species of larvae breeding were indentified. A spleen examination of as many children as possible from the different blocks was made to determine the amount of malaria present in each block. A number of blood smears were also taken to determine the parasite rate which are still under examination. Adult anopheline mosquitoes collected from both houses and cattle sheds were identified.

Spleen Examination.

Children both in and out of school were examined for enlarged spleen. All examination were done with the child lying on the back wit both knees drawn up. Out of a total of 493 boys and girls examined 83 were coming from outside Pandya, from the adjoining villages and the rest were grouped according to their placesof residence. A detailed statement of the findings is given in Table III.

Table III.

Spleen Rate by Blocks in Pandya town.

Blocks	Total Exg.		Spleen.					Percent
			0	1	2	3	4	
Extension Block	73	72	1	-	-	-	-	1.3
Station "	13	12	1	-	-	-	-	7.6
Vokkaligar "	33	30	-	3	-	-	-	9.09
Sugar Factory	10	9	-	1	-	-	-	10.0
Toddy Shop	21	19	-	2	-	-	-	9.5
Electric Colony	9	8	-	-	1	-	-	11.1
Brahmin Street	86	77	1	7	-	1	-	10.4
Bazaar Street	67	33	1	1	2	-	-	7.0
Jain Street	33	32	-	1	-	-	-	3.03
A.K.Colony	75	69	2	2	2	-	-	8.0
T o t a l	410	381	6	17	5	1	0	7.07

The children coming from outside when classified by villages the number examined for each village was so small that separate spleen rates for each of these villages was not computed. Of these 83 outsiders exami ed, 32 had enlarged spleens, very big in size in most cases, giving a spleen rate of 35.3.

Out of a total of 89 children examined from coolie block

22

coolie block of the Sugar Factory, 2 showed enlargement of spleen, giving a spleen of 22.2. It has already been referred to that this population is drawn from different parts of the country and a number of them from places which are hyperendemic for malaria. This introduces a new factor in the future control of the possible spread of malaria into the town, which has to be seriously considered.

Anophelines.

During the survey, larvae of 10 anopheline species were collected from different sources in and around Landya town. The species found are listed below:

1. A. hyrcanus
2. A. subpictus
3. A. vagus
4. A. Pallidus
5. A. culicifacies
6. A. annularis
7. A. jamesii
8. A. tesselatus
9. A. fluviatilis
10. A. stephensii

The types of anopheline breeding places found include (1) tanks, (2) wells, (3) channels, (4) pools and (5) paddy fields. All the water collections examined will be described under the above five headings.

THE LANDYA TANK.

This is quite a big shallow tank, almost completely covered with grass & vegetation. It is now fed by a branch channel from the Irwin Canal and remains full throughout the year. It is being used now for irrigating about 300 acres of wet land under it, and also serves as a general place for washing and bathing by the people in the old town. This tank also supplies water to the Sugar Factory. This was found to be a prolific breeding place for anophelines and the following species were collected from this tank.

1. A. hyrcanus
2. A. annularis
3. A. vagus
4. A. pallidus
5. A. Culicifacies
6. A. jamesii
7. A. subpictus

THE [illegible] TANK.

This tank lies immediately behind the existing extension and irrigated about 16 acres of land. This does not form a part of the Irwin Canal Irrigation system. There is not much vegetation and at the time of the examination, was found to be breeding only A. subpictus.

C H A N N E L S.

Under this heading are included all running water courses like irrigation channels in the Paddy fields, waste weir valleys (hallas), storm water drains etc. Each of these within and around Bandya, which are likely to be of importance from the point of view of anopheline breeding will be considered separately.

THE [illegible] HALLA OF THE BANDYA TANK.

This flows north to south immediately behind the Brahmin street in a winding course and ultimately joins the Hebbahalla about a mile to the ~~xxxx~~ south of the sugar factory. Before raising the waste weir, near the town, water was continuously over-flowing the waste weir and there used to be a good flow of water in this valley. Now at its source it collects only seepage and leak waters from the waste weir itself. During its course to the Hebbahalla, it receives all the surplus water from the paddy fields immediately to its west and the sullage water from the town. The entire course is covered with ~~xxx~~ heavy vegetation and offers excellent breeding ground for anophelins. In view of its close proximity both to the old town and the new labour colony within the sugar factory, measures for the control of anopheline breeding is very necessary. The anopheline larvae collected from this channel are:

1. A. hyrcanus
2. A. subpictus
3. A. culicifacies.
4. A. vagus
5. A. pallidus

CHANNELS WITHIN THE PADDY FIELDS.

There are paddy fields both under the Mandya tank and the Hosahalli tank. In view of our experience in the Station for the Study of Malaria at Nagenahalli, these are of great importance as the chief source of malaria carriers. The anopheline larvae collected from these channels and the adjacent paddy fields in the two areas referred to are:

1. A. hyrcanus
2. A. culicifacies
3. A vagus
4. A. pallidus
5. A. subpictus

The measures necessary to control anopheline breeding in these areas will be discussed later.

THE HARANGA LA.

This is a very big natural valley collecting water from the tanks above and ultimately joining the Arsinkere tank, lower down. This is at present much beyond the half mile zone from the periphery of the town and will have to be considered later when the spread of the new extensions has sufficiently advanced. At the time of examination larvae of A. subpictus and A. hyrcanus only were found.

THE WASTE WEIR OVER-FLOW FROM KALLAHALLI TANK.

This collects the surplus water from the Kallahalli tank and joins the Mandya tank, lower down. There is another small tributary joining this halla from the Kallahalli village crossing the Mysore - Bangalore railway line. This will just be within the half mile zone from the periphery of the town. This halla was found to breed:

1. A. subpictus
2. A. culicifacies
3. A. hyrcanus.
4. A. pallidus
5. A. annularis

W E L L S.

As there is no pipe water supply in Mandya town, there

there are a number of wells both in the old town and in the extension. Almost every house has a well and new wells are being constructed as new houses are being put up A number of wells were examined both in the town and in the extension and a large percentage of them in the old town were found to be bre ding A. stephensii. The wells in the extension are all stocked with fish (Gambusia) and except for the few new ones with out fish there were no larvae found in these wells.

Out of a total of 61 wells examined in the old town, 11 showed A. stephensii larvae and only 1 out of 29 wells in the extension Besides A. stephensii, a few A culicifacies and A subpict s were also found.

P O N D S.

All the ponds in the town have been stocked with fish and no anopheline larvae were found breeding in them. The pond behind Hosahalli tank where no fish were found present, larvae of A. jamesii, A. annularis and A. subpictus were found breeding.

P O O L S.

A number of stagnant pools in t e town were examined and larvae of A subpict s and A. culicifacies were found.

D R A I N S.

It has been previously mentioned that the drains in the town are in a state of v ry bad disrepair. Many of these drains hold water most of the time a could be judged from the larvae and the larval skins present. Most of these found were culex. But the earthen drain carrying the sullage water from the extension to the Kodihalla (waste weir over-flow channel) had a number of pools in its bed and the following anopheline spécies were found breeding in this drain.

1. A. tessellatus
2. A. hyrcanus
3. A. subpictus
4. A. culicifacies
5. A. fluviatilis

26

ADULT MOSQUITOES

A number of houses and cattle sheds were visited both in the old town and in the extension for the collection of adult anopheline mosquitoes. The anophelines collected by species in the town and in the extension are given in Table IV.

Table IV

ANOPHELINE MOSQUITOES FROM HOUSES AND CATTLE SHEDS.

	Old Town	Extension
1.	A subpictus	
2	A Vagus	
3	A stephensii	1. A subpictus
4.	A annularis	2 A stephensii
5	A. culicifacies	
6.	A fluviatilis	

DISCUSSION.

From a study of the splen rates by blocks as given in table III it is seen that the Electric colony, the Brahmin street and the Vokkaligar street show spleen rates round about 10 per cent and that the extension is by far the healthiest showing a spleen rate of only 1.3 per cent. The spleen rate of 7.1 for the whole town does not very materially differ from the spleen rate of 4 3 for the same town in 1932. It is thus seen that though villages just within a few miles of Landya show an increase of spleen rates from almost zero to between 70 and 80 per cent, Landya has not yet been affected. From a study of the larval catches, it is seen that the malaria carrier species A stephensii A culicifacies and A. listoni are breeding and the adult females of all the three speies have been found in the houses and cattle sheds. But on analysing the actual numbers collected, it is found that only 60 anopheline females of all species have been

have been collected from 20 houses and cattle sheds visited. Of these the anophelines of the dangerous group are 30 or 1.5 per house or cattle shed. It is just possible that the density of these carriers is not sufficient to bring about a more wide spread prevalence of malaria in Mandya, specially as all the factors such a Temperature humidity, a non-immune population and a reservoir of parasites, are extremely favourable.

It therefore becomes necessary to take preventive measures early so as to prevent the possibility of any more intensive breeding of these carrier species. It should be quite obvious that it is always easier to prevent any disease from getting a foot hold, than to try and control it after it has become wide spread.

RECOMMENDATION

Tanks

The Mandya tank is now fed by a branch from Irwin Canal and irrigates about 300 acres of land. In view of the extensive surface it affords for anopheline breeding it is necessary to breach this tank and other arrangements made for providing water to the lands below the tank. It is suggested that the paddy fields below the tank and the sugar factory be supplied with the necessary water by means of a direct channel.

A pond near the waste weir adjacent to the Brahmin street may be provided within the tank bed to afford the necessary convenience for bathing and wahing Any possible anopheline breeding in this pond can easily be controlled by stocking it with fish. The rest of the tank bed it is suggested may be utilised for play grounds and as grazing fields for the cattle in the neighbouring villages. Wet irrigation in the tank bed should not be permitted on any account.

MALARIA SURVEY OF MANDYA TOWN.

Mandya is one of the important towns along the Mysore Bangalore road about 25 miles from Mysore City. It has a population of about 4,000 and is rapidly growing in size as also in importance with the development of the Irwin Canal area A number of new offices have recently been located in this town and with the advent of the Sugar Factory just outside the municipal limits, a large mixed population from all parts of South India and parts of the Bombay Presidency has been imported

The present town includes the old town proper and the existing extension. With the increase in population and importance of this place the town is being widely extended on either side of the present extension. The old town is very heavily congested and is the centre of all business activities. Immediately adjacent to the town on the western side is a big but shallow tank which now remains full all the year round. The waste weir halla runs just behind the town, south to north and later joins the Hebbahalla There is no adquate drainage in the old town and the surface storm water drains are in a state of very bad repair Adequate drainage by means of surface drains is under construction in the present extension.

There is no pipe water supply in the town There are a number of surface wells both in the old town and the extension The water in most of the wells is brackish. Almost every house has a well and a new well is being sunk with each new building A large number of the town residents use the water from a pond next to the Rural Health Unit Office for drinking purposes.

The level of the subsoil water is quite high and ranges from almost 3 ft. in the old town next to the tank, to about 40 ft in the extension The sub-soil water level is very much

much higher generally in the old town than in the extension on account of the proximity of the tank for onething and perhaps due to the higher elevation of the extension

RAINFALL.

The average rainfall in this area is about 26 inches The rainfall is derived from both the South- est and North-East monsoons, the season of the North-East monsoon from October to December contributing a greater share.

A statement giving the distribution of rainfall by months is given in Table I

Table I

	1929		1930		1931		1932		1933		1934	
	I.	c	I	c	I	c	I	c	I	c	I	c.
January	-	-	-	50	-	-	-	-	-	-	-	20
February	1	83	1	19	-	-	1	54	-	-	-	05
March	-	-	-	-	-	74	-	-	-	-	-	-
April	7	83	1	1	2	8	1	57	3	36	2	40
May	2	35	8	69	2	66	6	71	8	47	2	6
June	1	10	1	28	-	40	1	-	-	72	1	80
July	-	32	-	51	-	85	-	74	3	96	1	28
August	1	22	-	30	-	-	6	39	6	56	-	40
September	6	10	4	10	5	78	1	6	3	49	1	95
October	3	85	10	59	-	75	11	19	9	11	9	28
November	3	71	3	45	7	33	3	51	-	-	-	-
December	1	8	-	56	-	86	-	-	1	4	-	-
Total	29	49	31	18	21	50	33	71	36	61		

Climate

The whole of this tract is hot and dry. With the advent of wet irrigation all the tanks are kept full through out the year and this is likely to have influenced the hymidity, making conditions more favourable for the transmission of malaria

Previous history of Malaria

The whole area which has now come under the Irwin Canal

Irwin Canal tract was quite dry and almost free from malaria. The people were generally well-built and quite healthy. A spleen survey of this tract in 1929 showed spleen rates from 0-5 in most villages and just alittle over 10 per cent in a few villages, chiefly due to local conditions. But with the start ot wet irrigation, the incidence of mal ria in this tract has gone up considerably and the Mandya town is virtually surrounded by an immense reservoir of human malaria Para.ites Mandya town had a spleen rate of 4.3 in October 1932 and distributed by blocks the spleen rates showed small variations in the different blocks. The details of the spleen rates by blocks is given in table II.

T a b l e II.

Spleen Rates by Blocks in Mandya Town (1932).

Blocks	Total	Neg.	Spleen size					Percent
			p	1	2	3	4	
I Block(Brahmin St)	90	86	2	1	-	1	-	3 3
II Block(Vokkaliga Colony)	52	46	4	1	1	1	-	11.5
III Block(Jain St)	50	48	-	2	-	-	-	4 0
IV Block(Mosque side)	45	43	1	1	-	-	-	4 4
V Block(A.K Colony)	90	90	-	-	-	-	-	0.0
T o t a l	327	313	7	5	1	1	0	4.3

A regular malaria survey of Mandya town was commenced on the 13th November and lasted till the 21st. During the survey, all the anopheline breeding areas were located and the species of larvae breeding were indentified. A spleen examination of as many children as possible from the different blo ks was made to determi e the amount of malaria present in each block. A number of blood smears were also taken to determine the parasite rate which are still under examination. Adult anopheline mosquitoes collected from both houses and cattle sheds were indentified.

Spleen Examination.

Children both in and out of school were examined for enlarged spleen. All examination were done with the child lying on the back withboth knees drawn up. Out of a total of 498 boys and girls examined 88 were coming from outside Mandya, from the adjoining villages and the rest were grouped according to their placesof residence. A detailed statement of the findings is given in Table III

T a b l e III.

Spleen Rate by Blocks in Mandya town

Blocks	Total	Neg.	Spleen p	1	2	3	4	Percent
Extension Block	73	72	1	-	-	-	-	1.3
Station "	13	12	1	-	-	-	-	7.6
Vokkaligar "	33	30	-	3	-	-	-	9.09
Sugar Factory	10	9	-	1	-	-	-	10.0
Toddy Shop	21	19	-	2	-	-	-	9.5
Electric Colony	9	8	-	-	1	-	-	11 1
Brahmin Street	86	77	1	7	-	1	-	10.4
Bazaar Street	57	33	1	1	2	-	-	7 0
Jain Street	33	32	-	1	-	-	-	3 03
A K Colony	75	69	2	2	2	-	-	8.0
T o t a l	410	381	6	17	5	1	0	7.07

The children coming from outside when classified by villages the number examined for each village was so small that separate spleen rates for each of these villages was not computed Of these 88 outsiders examined, 32 had enlarged spleens, very big in size in most cases, giving a spleen rate of 35 3.

Out of a total of 99 children examined from coolie block

82

coolie block of the Sugar Factory, 22 showed enlargement of spleen, giving a spleen of 22.2 It has laready been referred to that this population is drawn from different parts of the country and a number of them from places which are hyperendemic for malaria. This introduces a new factor in the future control of the possible spread of malaria into the town, which has to be seriously considered.

Anophelines.

During the survey, larvae of 10 anopheline species were collected from different sources in and around Mandya town The species found are listed below:

1 A hyrcanus
2 A. subpictus
3 A Vagus
4 A Pallidus
5 A. culicifacies
6. A. annularis
7. A. jemesii
8 A. tesselatus
9. A. fluviatilis
10 A. stephensii

The types of anopheline breeding places found include (1) tanks, (2) wells, (3) channels, (4) pools and (5) paddy fields. All the water collections examined will be described under the above five headings.

THE MANDYA TANK.

This is quite a big shallow tank, almost completely covered with gross ~~gx~~ vegetation. It is now fed by a branch channel from the Irwin Canal and remains full through out the year It is being used now for irrigating about 300 acres of wet land under it, and also serves as a general place for washing and bathing by the people in the old town. This tank also supplies water to the Sugar Factory. This was found to be a prolific breeding place for anophelines and the following species were collected from this tank.

1. A hyrcanus
2. A. annularis
3 A. vagus
4. A. pallidus
5 A. Culicifacies
6 A. jamesii
7. A. subpictus

THE HOSAHALLI TANK

This tank lies immediately behind the existing extension and irrigated about 16 acres of land This does not form a part of the Irwin Canal Irrigation system. There is not much vegetation and at the time of the examination, was found to be breeding only A. subpictus.

C H A N N E L S .

Under this heading are included all running water courses like irrigation channels in the Paddy fields, waste weir valleys (hallas), storm water drains etc. Each of these within and around Mardya, which are liekly to be of importance from the point of view of anopheline breeding will be considered separately.

THE WASTE WEIR HALLA FROM THE MANDYA TANK.

This flows north to south immediately behind the Brahmin street in a winding course and ultimately joins the Hebbahalla about a mile to the south of the sugar factory. Before raising the waste weir, near the town, water was continueously over-flowing the waste weir and there used to be a good flow of water in this valley. Now at its source it collects only seepage and leak waters frm the waste weir itself. During its course to the Hebbahalla, it receives all the surplus water from the paddy fields immediately to its west and the sullage water from the town. The entire course is covered with heavy vegetation and offers excellent breeding ground for anophelins In view of its close proximity both to the old town and the new labour colony within the sugar factory, measures for the control of anopheline breeding is very necessary The anopheline larvae collected from this channel are:

1. A hyrcanus
2 A subpictus
3. A culicifacies.
4. A. vagus
5 A pallidus

84

CHANNELS WITHIN THE PADDY FIELDS.

There are paddy fields both under the Mandya tank and the Hosahalli tank. In view of our experience in the Station for the Study of Malaria at Nagenahalli, these are of great importanc as thechief source of malaria carriers. The anophelinelarvae collected from these channels and the adjacent paddy fields in the two areas referred to are:

1 A. hyrcanus
2. A culicifacies
3. A. vagus
4. A pallidus
5. A subpictus

The measures necessary to control anopheline breeding in these areas will be discussed later.

THE HEBBAHALLA.

This is a very big natural valley collecting water from the tanks above and ultimately joining the Arsinkere tank, lower down. This is at present much beyond the half mile zone from the periphery of the town and will have to be considered later when the spread of the new extensions has sufficiently advanced. At the time of examination larvae of A. subpictus and A. hyrcanus only were found.

THE WASTE WEIR OVER-FLOW FROM KALLAHALLI TANK.

This collects the surplus water from the Kallahalli tank and joins the Maddya tank, lower down. There is another small tributary joining this halla from the Kallahalli village crossing the Mysore - Bangalore railway line. This will just be within the half mile zone from the periphery of the town This halla was found to breed:

1. A subpictus
2. A. culicifacies
3 A hyrcanus
4. A pallidus
5. A. annularis

W E L L S.

As there is no pipe water supply in Mandya town, there

there are a number of wells both in the old town and in the extension Almost every house has a well and new wells are bein constr c ed as new houses are beir g put up A number of wells were examined both ir the town and in the extension and a large percentage of them in the old town were found to be breeding A stephensii. The wells in the extension are all stocked with fish (Gambusia) and except for the few new ones with out fish there were no larvae found in these wells

Out of a total of 61 wells examined in the old town, 11 showed A stephensii larvae and only 1 out of 29 wells in the extension Besides A stephensii, a few A culicifacies and A subpict s were al o found

P O N D S

All the ponds in the town have been stocked withfish and no anopheline larvae were found breeding in them The pond behind Mosahalli tank where no f sh were found present, larvae of A jamesii, A annularis and A subpictus were found breeding

P O O L S.

A number of stagnant pools in t e town were examined and larvae of A subpict s and A culicifacies were found

D R A I N S

It has been previously mentioned that the drains in the town are in a state of v ry bad disrepair Many of these drains hold water most of the time a could be jud ed from the larv e and the larval skins present Most of th se found were culex But the earthen drain carrying the sullage water from the extension to the Kodihalla (waste weir over-flow channel) had a number of pools in its bed and the following anopheline species were found breedin in this drain

1 A tesselatus
2 A hyrcanus
3 A subpictus
4 A culicifacies
5 A fluviatilis

86

[illegible] MOSQUITOES.

A number of houses and cattle sheds were visited both in the old town and in the extension for the collection of adult anopheline mosquitoes. The anophelines collected by species in the town and in the extension are given in Table IV.

Table IV.

[illegible]

	Old Town	Extension
1.	A. subpictus	
2.	A. Vagus	
3.	A. Stephensii	1. A. subpictus
4.	A. annularis	2. A. Stephensii
5	A. culicifacies	
6.	A. fluviatilis	

[illegible]

From a study of the spleen rates by blocks as given in table III it is seen that the [illegible] colony, the [illegible] street and the Vakkaliga street show spleen rates round about 10 per cent and that the extension is by far the healthiest showing a spleen rate of only 1.3 per cent. The spleen rateof 7.1 xxx for the whole town does not very materially differ from the spleen rate of 4.3 for the same town in 1930. It is thus seen that though villages just within a few miles of Bandya show an increase of spleen rates from almost zero to between 70 and 80 per cent, Bandya has not yet been affected. From a study of the larval catches it is seen that the malaria carrier species A. Stephensii A. culicifacies and A. listeni are breeding and the adult females of all the three species have been found in the houses and cattle sheds. But on analysing the actual numbers collected, it is found that only 60 anopheline females of all species have been

have been collected from 20 houses and cattle sheds visited. Of these the anophelines of the dangerous group are 30 or 1.5 per house or cattle shed. It is just possible that the density of these carriers is not sufficient to bring about a more wide spread prevalence of malaria in Landya, specially as all the factors such as temperature humidity, a non-immune population and a reservoir of parasites, are extremely favourable.

It therefore becomes necessary to take preventive measures early so as to prevent the possibility of any more intensive breeding of these carrier [illegible] species. It should be quite obvious that it is always easier to prevent any disease from getting a foot hold, than to try and control it after it has become wide spread.

[illegible]

[illegible]

The Landya tank is now fed by a branch from Irwin Canal and irrigates about 200 acres of land. In view of the extensive surface it affords for anopheline breeding it is necessary to breach this tank and other arrangements made for providing water to the lands below the tank. It is suggested that the paddy fields below the tank and the sugar factory be supplied with the necessary water by means of a direct channel.

A pond near the waste weir adjacent to the Brahmin street may be provided within the tank bed to afford the necessary convenience for bathing and washing. Any possible anopheline breeding in this pond can easily be controlled by stocking it with fish. The rest of the tank bed it is suggested may be utilised for play grounds and as grazing fields for the cattle in the neighbouring villages. Wet irrigation in the tank bed should not be permitted on any account.

HOSAHALLI TANK

This tank is within a furlong of the new extension and is always dangerous It is irrigating only about 16 acres of wet land. This tank should be breached and it is understood that there is no serious impediments to this step being taken The wet lands under the tank may all be converted into garden land, perhaps with greater profit

WELLS AND PONDS.

All the wells and ponds within the municipal area should be stocked with the larvicidal fish There is already a central hatchery and the stocking of the wells should be very easy

The fish are liable to die off in the wells from about 6 to 8 months after they have been introduced into them An agency to regularly inspect the wells and for stocking them with fish whenever necessary should be established

CHANNELS

The waste weir over-flow channels from the Kandya and the Kallahalli tanks have to be treated with Paris Green This work can be entrusted to the Health Officer, Rural Health Unit, if the necessary staff is provided It is expected that 2 fieldmen and an allotment not exceeding Rs 500/- for Paris Green will be quite ample to control all anopheline breeding in these channels This will have to be provided for by the Municipality The estimated cost for staff and paris green is based on the assumption that the two tanks referred to will be breached.

P O O L S.

All these pools will have to be paris greened The staff with the allotment proposed, can caontrol the whole area

D R A I N S

So far as the anopheline breeding is concerned, the only drain that requires attention is the one carrying the sullage water from the extension through the town, to the waste weir halla This will have to be properly graded and built up in stone It is understood that this work is sanctioned and will soon be taken up

It is further suggested that the breaching of the tanks and the location of the bathing pond recommended be undertaken under the advice of the Sanitary Engineer The supervision of Anti-malaria activities should be under the control of a trained Health Officer and it is desirable the Health Officer in charge of the Rural Health Unit be entrusted with this work, as hewill always be trained in Anti-malaria work.

Sd/- S Ramanadhawamy Rao,
Superintendent,
Bureau of Epidemiology

"C O P Y"

Director of Health

BIVC/10

140

[illegible] TANK.

This tank is within a furlong of the new extension and is always dangerous. It is irrigating only about 10 acres of wet land. This tank should be breached and it is understood that there is no serious impediments to this step being taken. The wet lands under the tank may all be converted into garden land, perhaps with greater profit.

[illegible] AND PONDS.

All the wells and ponds within the municipal area should be stocked with the larvicidal fish. There is already a central hatchery and the stocking of the wells should be very easy.

The fish are liable to die off in the wells from about 6 to 9 months after they have been introduced into them. An agency to regularly inspect the wells and for stocking them with fish whenever necessary should be established.

CANALS.

The waste weir over-flow channels from the Pandya and the Pallamalli tanks have to be treated with Paris Green. This work can also be entrusted to the Health Officer, Rural Health Unit, if the necessary staff is provided. It is expected that 2 fieldmen and an allotment not exceeding Rs.500/- for Paris Green will be quite ample to control all anopheline breeding in these channels. This will have to be provided for by the Municipality. The estimated cost for staff and paris green is based on the assumption that the two tanks referred to will be breached.

POOLS.

All these pools will have to be paris greened. These off with the allotment proposed, can control the whole area.

D R A I N S.

As far as the anopheline breeding is concerned, the only drain that requires attention is the one carrying the sullage water from the extension through the town, to the waste weir halla. This will have to be properly graded and built up in stone. It is understood that this work is sanctioned and will soon be taken up.

It is further suggested that the breeding of the tanks and the location of the bathing ond re ommended be undertaken under the advice of the sanitary engineer. The supervision of anti-malaria activities should be under the control of a trained Health Officer and it is desirable the Health Officer in charge of the Rural Health Unit be entrusted with this work, so hewill always be trained in Anti-malaria work.

Sd/- B Anantaswamy Rao,
Superintendent,
Bureau of Epidemiology

"C o p y"

10/12

Director of Health.

SLV./10

Appendix F G—1]

SUBJECT

42

Diary No of letter replied to

General and Revenue Secretariat

( )

the *193*

Date of issue 16/1/36

Signed by Mr A S Row

List of enclosure

Copied by

Examined by

Section ML

File No 172-35

Serial No 1

No L 5290

To

The Deputy Commr
Mysore Distt

Sir,

I am directed to state that the Director of Health has reported that he has sent to you the President of the Mandya Town Municipality a note on the control of malaria in the town, with recommendations for carrying out the measures to prevent malaria. ~~In this connection I am to state that~~ Govt consider that it is [illegible]

WD 03601—GPB—30 000—23 9 35

desirable that a permanent
staff should be appointed to
look after the health of the
town, if it is not to become
a hot-bed of malaria.
I am to request you to ask
the President of the Municipal Board
to submit his proposals in this behalf,
as well as in respect of the
matters referred to in the Director's
note, about which early action
has to be taken.

The matter may be kindly treated as important
and urgent.

I have etc.

MW

Mgr Secy to Govt

Dr D. D

Memorandum 5291/mc 8/16-4-36

Copy sent to the Dir of Health
with reference to his letter no C 1092 3
dated the 11th Dec 1935 for info

B.O.
MW

Mgr Secy to Govt

D.D

Copy sent to [illegible] By (Diary received)
MW

Extra

GOVERNMENT OF HIS HIGHNESS THE MAHARAJA OF MYSORE

General and Revenue Secretariat

Dated Bangalore 16-1-36 193

No C 5290 - 15th January 36
ME 172-35-1

From The

Secretary to the Government of His Highness the Maharaja of Mysore
Development Department

To The Deputy Commissioner, Mysore District.

Sir I am directed to state that the Director of Health has reported that he has sent to you and the President of the Nanjya Town Municipality a note on the condition of malaria in the Town, -with recommendations for carrying out the measures to prevent Malaria, Government consider that it is most desirable that a permanent staff should be appointed to look after the health of the town, if it is not to become a hot-bed of malaria

I am to request you to ask the President of the Nanjya Municipal Council to submit suitable proposals in this behalf, as well as in respect of other matters referred to in the Director's note about which early action has to be taken

The matter may be kindly treated as important and urgent

I have the honour to be,
Sir,
Your most obedient servant,

Secretary to Government,
Development Department

Me 172-35-2-

No D. 2286/35-36
For one file

OFFICE OF THE DEPUTY COMMISSIONER
MYSORE DISTRICT

Dated Mysore 5th March 1936

FROM

B T KESAVAIENGAR Esq B A
DEPUTY COMMISSIONER
MYSORE DISTRICT

To

M VENKATANARANAPPA, Esq , B A ,

Secretary to the Government of Mysore,
Development Department, Bangalore

SIR

Measures for the control of Malaria in Mandya Town

With reference to your letter No L 5290 M1 172-35-1 dated 15/16th February 1936 and subsequent reminder thereon, I have the honour to submit, herewith, a note containing proposals in the light of the special Malaria Survey report, received with report No C 282/35-36 dated 24/26th February 1936, from the President of Mandya Town Municipal Council for favour of perusal The Municipal Council have approved all the proposals except the abolition of wet cultivation under Mandya tank As suggested therein, the Director of Health may kindly be addressed to take up, through the Health Officer, Rural Health Unit, the work of stocking of fish in all the wells and ponds and spraying the concerned drains and hallas with Paris Green It is reported that an annual grant of Rs 250/- will be made available from Municipal funds for the Paris Green for the next three years

I request that sanction of Government may kindly be obtained for the entertainment of a staff, consisting of 2 Fieldmen to work under the control of the Health Officer, Rural Health Unit, the cost being debited to his establishment and a grant of an equal amount from the Irwin Canal Health Funds towards the cost of Paris Green

I have the honour to be,
Sir,
Your most obedient servant,

DEPUTY COMMISSIONER,
Mysore District

IRS

No G 332/35-36
EN Four

Office of the President,
Town Municipal Council, Mandya,
Dated, Mandya, the 24th/26 February 1936

46

From
The President,
Mandya Town Municipality,
Mandya

To
The Deputy Commissioner,
Mysore District,
Mysore

Sir,

Measures for the Control of Malaria in Mandya Town

With reference to your Memo No D3-2386/35-36 dated 24th January 36 and subsequent memoNo D4-2131/35-36 dated 11th February 1936, regarding the above subject, I have the honour to submit herewith a note containing my proposals in the light of the Special Malaria Survey Report

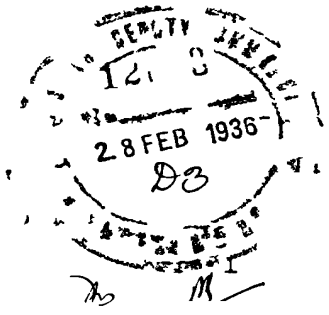
The matter was also placed for consideration by the Rural Municipal Council at the meeting held on 23-2-1936 The Council have agreed that all the proposals except the abolition of wet cultivation under Mandya tank may be adopted (vide copy of their resolution) As regards the abolition of wet cultivation, the objection put forward by the Councillors is that much hardship will be felt by the ryots if they have to leave the lands at their door and take up wet cultivation at some distance (about one or two miles from the town) This does not appear to be a very strong objection

This is really a matter to be inquired into mong the concerned holders of lands as as will be seen from the statement, there are 280 hidivalidars, and in the interest of the requirements of a large and growing Town, with a population of over 8000, the difficulties of the holders of lan s have to be minimised as far as possible by the other arrangements As more than 30,000 acres have been newly brought under irrigation in Mandya Taluk, the removal of 350 acres of wet lands cannot cause great difficulty among the ryots of the area however this is a question for the kind consideration of Government and orders

The Executive Engineer, Irwin Canal Division, was not present at the meeting and he will be separately consulted regarding the arrangements for supply of water to the Sugar Factory

I request that early orders of Government may kindly be obtained on the proposals, and in the meanwhile, in the view of the Council

resolution, the Director of Health may kindly be addressed to take up, through the Health Officer, Rural Health Unit, the work of stocking of fish in all the wells and ponds and spraying the concerned drains and hallas with Paris Green The report received with your emo is herewith enclosed



I have the honour to be,

Sir,

Your most obedient servant,

President,
Town Municipal Council,
Mandya

SF

ote regarding the measures required for the prevention and control of Malaria in Mandya Town

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Although Malaria has not hitherto made much headroad into Mandya Town, as will be seen from the Special Malaria Survey Report, and the scare in this respect appears to be largely unfounded, it is quite necessary to adopt measures forth-with for controlling the spread of malaria and preventing its increase in future

From the malaria survey report (vide page 2) it will be seen that the chief reason for the local conditions now being favourable for the transmission of malaria, is the tanks being kept full throughout the year It is this which is responsible for the level of the subsoil water rising very high, so as almost to interfere with proper drainage, particularly in the old Town(vide page1)

It is reported that 5 or more of the anopheline species are to be found largely in the Mandya Tank (vide para 1 page 6) and the waste-weir halla from this tank (para 4, page 6) its channels and paddy fields and the earthen main drain carrying the sullage water from the extension to the waste-weir halla The report shows that Hosahally tank accounts for only one species, A. Subpictus while some wells, and the drains in disrepair showed the presence of two species, stephensi and culicifacies The houses and cattle sheds offer scope to a limited extent to the existance of the carrier species

In the light of the information furnished above as a result of intensive survey, I would submit the following proposals and remarks regarding the measures that may be adopted for controlling the above factors

After careful consideration, the first and foremost measure, I would recommend is the breaching and complete abolition of the Mandya tank, and the wet cultivation there-under I am aware that the special survey Officer has not proposed the latter but I am convinced that if we are to have an effective prevention of malaria and to guarantee the health of the Town, in the years to come, the removal of the tank as also all wet cultivation thereunder, which is all extremely close to the Town, will be of inestimable benefit

First of all, this measure would mean that there will be no stagnant water round Mandya right up to Chikkamandya waste weir halla e , a

a distance of nearly a mile and a half, and the advantages of this will be obvious

Secondly, this will eradicate what are at present the most prolific sources of high malarial contamination, viz , the Mandya tank, spread margin, the waste weir halla from it, its irrigation channels and paddy fields, the rise of the subsoil water level in the wells and drains of the old town and the stagnant condition of water in the former

Thirdly, the cost of Malaria control work will be considerably reduced In para 5, page 11 of the special Survey report, the recommendation made is for the employment of 2 fieldmen and an allotment not exceeding Rs 500/- for Paris Green treatment in the waste weir hallas of Mandya and Kallahalli tanks This is on the assumption that the Mandya Tank is breached. If the wet cultivation is further stopped as proposed by me above, the presence of irrigation and seepage water in the waste-weir halla of Mandya tank will be avoided and the cost proportionately reduced

I therefore recommend that Mandya tank and the wet cultivation thereunder be stopped and all water supply into it be cut off by turning off all seepage flow from above into the waste-weir halla of Chikkamanyda directly Though at first sight the proposal may seem impracticable of consideration, it will not be really so, as explained below, and merits the earliest consideration, considering the enormous benefit accuring from it to the Town

Particulars regarding the extent of the tank bed and tank atchkat and the permanent wet assessment creditable to Land Revenue and the numbers of hiduvalidars holding these lands, contribution and water rate creditable to the Irwin Canal and the amount recovered so far are given in the enclosed statement

The ryots will be losing 358 acres of wet land, no doubt this is hard as the lands particularly near the town are somewhat valuable But even as dry lands, they will command a great value in Mandya and in order to compensate for the conversion of the wet into dry, an extent equal to or not exceeding 1½ times the area so converted according to its quality and value may be granted to the parties concerned for dry cultivation out of the tank bed (431 acres) which

which will become available, this being itself highly fertile and valuable, it seems to me such an arrangement may be agreed to by many parties In some cases where all the wet lands possessed by the parties are lost, irrigable Government land in the nearby village of Ramanahalli may be granted in exchange on a reasonable basis with the sanction of Government In those cases where the parties may not be willing to taking other lands as above in exchange, compensation may be determined on the basis of acquisition proceedings and paid to the parties, the lands so released being disposed of to others by Government by public auction or otherwise As the dry lands may be estimated at ₹ 200/- to 250/- per acre and the wet lands from ₹ 500/- (near Mandya) to ₹ 300/- near the last reaches of the atchkat, there will be no great difficulty in arranging for the conversion and compensation of the wet lands without any great cost

From the point of view of Government revenue, there will be a loss of nearly ₹ 1253/- by way of Land Revenue assessment annually, due to the conversion of wet into dry (358 x (difference between average wet (viz , ₹ 5/-) and maximum dry rate (which (~~₹ 1-8-0~~), may be levied on these lands) As 431 acres will be brought under cultivation out of the tank bed newly and the maximum dry rate (viz , ₹ 1-8-0) may be adopted for these, there will be an annual yield of ₹ 647/- creditable to Land Revenue, the net loss thus being ₹ 606/- But as the entire storage of Mandya tank will become available for supply to fresh dry lands elsewhere, this loss will be made up thereby even if about 120 acres are additionally brought under irrigation

As regards the loss of this extent from the Irwin Canal Seepage atchkat, since this storage which will be released, would be utilised for extending high level channels and the atchkats under the other tanks in the Irwin Canal area, ex , Kallahalli, Holalu Satanur, Budanore, there will be no loss of revenue incurred by this proposal

The only other point that requires consideration is the supply of water to the Sugar Factory I think this may offer no great difficulty The quantity required to be supplied to the factory [illegible] may be arranged for, perhaps by extending the present pipe line by another mile nearly to Kallahally [illegible], or in the alternative from the

New Water Supply reservior of Mandya Town The Executive Engineer, Irwin Canal D vision, (separately) will be consulted regarding the feasibility of this

Hosahalli Tank 2) As has been stated above, this has not been the cause of much malaria so far (vide para 2, page 6 of the report) There is a wet atchkat of only 16 acres under this tank I am not sure that in the above circumstances it should be breached It is a small tank, without Irwin Canal seepage Near a growing town, it would be useful as a ~~resort~~ resort for washing, bathing etc , for the people It will be necessary however to prevent brick kilns being put up near its margin as this will cause stagnant pools and pits etc , Regarding this instructions will be issued to the Amildar Mandya Taluk The tank may also be arranged to be emptied completely by having a shutt in the waste weir, for one or 2 months in the summer every year However, if the Health Department after further examination if necessary, recommends its being also breached, the same can be easily effected, the general arrange ents suggested above being adopted in this case also

Wells and Ponds (3) By the breaching of Mandya tank, the intrinsic condition of the wells will greatly improve as a rule In para 3, page 11 the special officer has recommended that all the wells and ponds within the municipal area should be stocked with larvicidal fish This proposal may be immediately adopted A sum of Rs 50/- may be set apart from the Municipal Funds for the expenditure in this respect The Health Officer, Rural Health Unit, Mandya considers that this provision will be adequate

The Health Officer, Rural Health Unit, Mandya may be requested to arrange for this and to inspect the wells etc once every 6 months and furnish his remarks to the Municipality for further necessary action regarding the periodical ~~replenishing~~ replenishing of the fish

Drains (4) As recommended by the Special Officer, the open earthen Main drain carrying the sewage from the Extension has to be urgently completed in ~~masonry~~ masonry This work has been already entrusted to the Executive Engineer, Irwin Canal Division and he may be requested to arrange for its immediate execution up to the waste weir halla of Mandya tark A sum of Rs 2000/- may be placed at the disposal of the Executive E

Engineer,

for this work from Municipal funds from the next year's budget , and Government may be requested to give a grant of an equal amount for the work from the Town Improvement grants The Executive Engineer May may be requested to arrange for the work a ter calling for tenders as it is expected that owing to keen competition favourable rates can thereby be secured

s regards the other drains, most of them, particularly in the old town, have been brought into good condition, in the new town,, some drains have not been constructed with proper slopes and the Executive Engineer has been requested to rectify these early The construction of new drains in all the places where they are urgently needed has been taken up already As however they are all open drains it is desirable to arrange for spraying of Paris Green periodically in them where necessary and this may be taken up immediately

For attending to the spraying and supervising the same, two fieldmen have been proposed In order to keep down the expenditure as much as possible, in view of the heavy expenditure that has to be met from Municipal Funds for various urgent needs of this growing town, one suitable hand from the existing conservancy establishment may be deputed solely for the spraying work, one additional hand only may be entertained under conservancy establsihment and deputed for this work The extra cost on this account will be Rs 120/- per year and may be provided for in the next year's budget estimates

As regards the cost of Paris Green, a sum of Rs 250/- may be provided for from Municipal Funds immediately s Mandya is n important centre of the Irwin Canal area and has contributed considerable sum towards the Irwin canal Funds, the Director of Health and the Government may be requested to contribute an equal sum of Rs 250/- from the Health Unit Funds for this work The Health Officer of the RuralHealth Unit work, may with the sanction of the Director of Health and the Government be entrusted with the organising and supervising the above anti-malarial measures, on behalf of the Municipality

To sum up, my recommendations are -

1) Mandya tank and wet cultivation thereunder be immediately abolished and all the area up to Chikkamandya waste weir halla be kept absolutely dry

The Revenue Sub Division Officer, Mandya may be requested to

formulate definite proposals in this respect after needful enquiry for the sanction of Government (I am personally of the opinion that the matter could be arranged by Kuar without any great difficulty or large outlay or loss to Government)

2) Hosahally tank may be breached if the Health Department on further examination if necessary, reiterate the same

3) All the wells and ponds in the Municipal area may be at once stocked with larvicical fish and periodically replenished

4) The main drain be arranged to be completed early

5) The Kallahally tank waste weir halla, the Mandya waste weir halla and the drains in the Town whereever necessary, be regularly Paris Green sprayed

6) That the Health Officer of the Rural Health Unit be on behalf of the Municipality entrusted with the work and a staff of 2 fieldman for the spraying be placed at his disposal, and that an annual grant of Rs 250/- be provided from Municipal Funds for the Paris Green for the next 3 years and that Government be requested to grant an equal amount from the Irwin Canal Health Funds

Yours,

President
Town Municipal Council, Mandya

SF

Extract from the Proceedings of the Town Municipal Council, Mandya
Dated, 23rd February 1936

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6) The proposals of the President contained in his note were explained to the Council It was resolved by a majority of 8 votes to 3 votes that as the ryots holding lands under Mandya Tank would be put to difficulty if their lands are at some distance from their habitation, wet cultivation under the Mandya Tank should be continued to be allowed but that the Mandya Tank might be breached, and supply of water allowed to the atchkat lands by means of a separate channel from the Irwin Canal for 6 months in a year, and that with the above modification all the proposals of the President might be approved and needful provision made in the

P T O

in the budget estimates for 36-37 accordingly

President,
Town Municipal Council,
Landya

SF

56

MALARIA SURVEY OF MANDYA TOWN.

Mandya is one of the important towns along the Mysore Bangalore road about 25 miles from Mysore City. It has a population of about 4,000 and is rapidly growing in size as also in importance with the development of the Irwin Canal area. A number of new offices have recently been located in this town and with the advent of the Sugar Factory just outside the municipal limits, a large mixed population from all parts of South India and parts of the Bombay residency has been imported.

The present town includes the old town proper and the existing extension. With the increase in population and importance of this place the town is being widely extended on either side of the present extension. The old town is very heavily congested and is the centre of all business activities. Immediately adjacent to the town on the western side is a big but shallow tank which now remains full all the year round. The waste weir halla runs just behind the town, south to north and later joins the Hebbahalla. There is no adquate drainage in the old town and the surface storm water drains are in a state of very bad repair. Adequate drainage by means of surface drains is under construction in the present extension.

There is no pipe water supply in the town. There are a number of surface wells both in the old town and the extension. The water in most of the wells is brackish. Almost every house has a well and a new well is being sunk with each new building. A large number of the town residents use the water from a pond next to the Rural Health Unit Office for drinking purposes.

The level of the subsoil water is quite high and ranges from almost 3 ft. in the old town next to the tank, to about 40 ft. in the extension. The sub-soil water level is very much

much higher generally in the old town than in the extension on account of the proximity of the tank for onething and perhaps due to the higher elevation of the extension.

Rainfall.

The average rainfall in this area is about 26 inches. The rainfall is derived from both the South- east and North-east monsoons, the season of the north-east monsoon from October to December contributing a greater share.

A statement giving the distribution of rainfall by months is given in Table I.

Table I.

	1929		1930		1931		1932		1933		1934	
	I.	c	I.	c.	I.	c	I.	c.	I.	c.	I	c.
January	-	-	-	50	-	-	-	-	-	-	-	20
February	1	83	1	19	-	-	1	54	-	-	-	65
March	-	-	-	-	-	74	-	-	-	-	-	-
April	7	83	1	1	2	8	1	57	3	36	2	40
May	2	35	8	69	2	66	6	71	8	47	2	6
June	1	10	1	28	-	40	1	-	-	72	1	80
July	-	32	-	51	-	85	-	74	3	96	1	28
August	1	22	-	30	-	-	6	39	6	56	-	40
September	6	10	4	10	5	73	1	6	3	49	1	95
October	3	85	10	59	-	75	11	19	9	11	9	23
November	3	71	3	45	7	33	3	51	-	-	-	-
December	1	8	-	56	-	86	-	-	1	4	-	-
Total	29	49	31	18	21	50	33	71	36	61		

Climate.

The whole of this tract is hot and dry. With the advent of wet irrigation all the tanks are kept full through out the year and this is likely to have influenced the hymidity, making conditions more favourable for the transmission of malaria.

Previous history of malaria.

The whole area which has now come under the Irwin Canal

Irwin Canal tract was quite dry and almost free from malaria. The people were generally well-built and quite healthy. A spleen survey of this tract in 1929 showed spleen rates from 0-5 in most villages and just alittle over 10 per cent in a few villages, chiefly due to local conditions. But with the start of wet irrigation, the incidence of malaria in this tract has gone up considerably and the Mandya town is virtually surrounded by an immense reservoir of human malaria Parasites. Mandya town had a spleen rate of 4.3 in October 1932 and distributed by blocks the spleen rates showed small variations in the different blocks. The details of the spleen rates by blocks is given in table II.

Table II.

Spleen Rates by Blocks in Mandya Town (1932).

Blocks		Total.	Neg.	Spleen size					Percent
				p	1	2	3	4	
I	Block(Brahmin St)	90	86	2	1	-	1	-	3.3
II	Block(Vokkaliga Colony)	52	46	4	1	1	1	-	11.5
III	Block(Jain St)	50	48	-	2	-	-	-	4.0
IV	Block(osque side)	45	43	1	1	-	-	-	4.4
V	Block(A.K.Colony)	90	90	-	-	-	-	-	0.0
T o t a l		327	313	7	6	1	1	0	4.3

A regular malaria survey of Mandya town was commenced on the 13th November and lasted till the 21st. During the survey, all the anopheline breeding areas were located and the species of larvae breeding were indentified. A spleen examination of as many children as possible from the different blocks was made to determine the amount of malaria present in each block. A number of blood smears were also taken to determine the parasite rate which are still under examination. Adult anopheline mosquitoes collected from both houses and cattle sheds were indentified.

Spleen Examination.

Children both in and out of school were examined for enlarged spleen. All examination were done with the child lying on the back withboth krees drawn up. Cut of a total of 493 boys and girls examined 83 were coming from outside Mandya, from the adjoining villages and the rest were grouped according to their placesof residence. A detailed statement of the findings is given in Table III.

Table III.

Spleen Rate by Blocks in Mandya town.

Blocks	Total	Neg.	Spleen.					Percent
			p	1	2	3	4	
Extension Block	73	72	1	-	-	-	-	1.3
Station "	13	12	1	-	-	-	-	7.6
Vokkaligar "	33	30	-	3	-	-	-	9.09
Sugar Factory	10	9	-	1	-	-	-	10.0
Toddy Shop	21	19	-	2	-	-	-	9.5
Electric Colony	9	8	-	-	1	-	-	11.1
Brahmin Street	86	77	1	7	-	1	-	10.4
Bazaar Street	67	33	1	1	2	-	-	7.0
Jain Street	33	32	-	1	-	-	-	3.03
A.K.Colony	75	69	2	2	2	-	-	8.0
T o t a l	410	381	6	17	5	1	0	7.07

The children coming from outside when classified by villages the number examined for each village was so small that separate spleen rates for each of these villages was not commuted. Of these 83 outsiders examined, 32 had enlarged spleens, very big in size in most cases, giving a spleen rate of 35.3.

Out of a total of 99 children examined from coolie block

coolie block of the Sugar Factory, 22 showed enlargement of spleen, giving a spleen of 22.2. It has laready been referred to that this population is drawn from different parts of the country and a number of them from places which are hyperendemic for malaria. This introduces a new factor in the future control of the possible spread of malaria into the town, which has to be seriously considered.

Anophelines.

During the survey, larvae of 10 anopheline species were collected from different sources in and around Kandya town The species found are listed below:

1. A. hyrcanus
2. A. subpictus
3. A. Vagus
4. A. Pallidus
5. A. culicifacies
6. A. annularis
7. A. jemesii
8. A. tesselatus
9. A. fluviatilis
10. A. stephensii

The types of anopheline breeding places found include (1) tanks, (2) wells, (3) channels, (4) pools and (5) paddy fields. All the water collections examined will be described under the a ove five headings.

THE KANDYA TANK.

This is quite a big shallow tank, almost completely covered with grass gx vegetation. It is now fed by a branch channel from the Irwin Canal and remains full through out the year It is being used now for irrigating about 300 acres of wet land under it, and also serves as a general place for washing and bathing by the people in the old town. This tank also supplies water to the Sugar Factory. This was found to be a prolific breeding place for anophelines and the following species were collected from this tank.

1. A. hyrcanus
2. A. annularis
3. A. vagus
4. A. pallidus
5. A. Culicifacies
6. A. jemesii
7. A. subpictus

THE [illegible] TANK.

This tank lies immediately behind the existing extension and irrigated about 16 acres of land. This does not form a part of the Irwin Canal Irrigation system. There is not much vegetation and at the time of the examination, was found to be breeding only A. subpictus.

CHANNELS.

Under this heading are included all running water courses like irrigation channels in the Paddy fields, waste weir valleys (hallas), storm water drains etc. Each of these within and around Kandya, which are likely to be of importance from the point of view of anopheline breeding will be considered separately.

THE WASTE WEIR HALLA FROM THE TANK.

This flows north to south immediately behind the Brahmin street in a winding course and ultimately joins the Hebbahalla about a mile to the ~~xxxxx~~ south of the sugar factory. Before raising the waste weir, near the town, water was continuously over-flowing the waste weir and there used to be a good flow of water in this valley. Now at its source it collects only seepage and leak waters frm the waste weir itself. During its course to the Hebbahalla, it receives all the surplus water from the paddy fields immediately to its west and the sullage water from the town. The entire course is covered with ~~xxx~~ heavy vegetation and offers excellent breeding ground for anophelins. In view of its close proximity both to the old town and the new labour colony within the sugar factory, measures for the control of anopheline breeding is very necessary. The anopheline larvae collected from this channel are:

1. A. hyrcanus
2. A. subpictus
3. A. culicifacies.
4. A. vagus
5. A. pallidus

62

CHANNELS WITHIN THE PADDY FIELDS.

There are paddy fields both under the Mandya tank and the Hosahalli tank. In view of our experience in the Station for the study of Malaria at Nagenahalli, these are of great importance as thechief source of malaria carriers. The anopheline larvae collected from these channels and the adjacent paddy fields in the two areas referred to are:

1. A. hyrcanus
2. A. culicifacies
3. A. vagus
4. A. pallidus
5. A. subpictus

The measures necessary to control anopheline breeding in these areas will be discussed later.

THE M. HALLA.

This is a very big natural valley collecting water from the tanks above and ultimately joining the Arishikere tank, lower down. This is at present much beyond the half mile zone from the periphery of the town and will have to be considered later when the spread of the new extensions has sufficiently advanced. At the time of examination larvae of A. subpictus and A. hyrcanus only were found.

THE [illegible] CHANNEL FROM [illegible] TANK.

This collects the surplus water from the Hallahalli tank and joins the Mandya tank, lower down. There is another small tributary joining this halla from the Ka lahalli village crossing the Mysore - Bangalore railway line. This will just be within the half mile zone from the periphery of the town. This halla was found to breed:

1. A. subpictus
2. A. culicifacies
3. A. hyrcanus.
4. A. pallidus
5. A. annularis

W E L L S.

As there is no pipe water supply in Mandya town, there

there are a number of wells both in the old town and in the extension. Almost every house has a well and new wells are being constructed as new houses are being put up. A number of wells were examined both in the town and in the extension and a large percentage of them in the old town were found to be breeding A. stephensii. The wells in the extension are all stocked with fish (Gambusia) and except for the few new ones with out fish there were no larvae found in these wells.

Out of a total of 61 wells examined in the old town, 11 showed A. stephensii larvae and only 1 out of 23 wells in the extension. Besides A. stephensii, a few A. culicifacies and A. subpictus were also found.

P O N D S.

All the ponds in the town have been stocked with fish and no anopheline larvae were found breeding in them. The pond behind Kosshalli tank where no fish were found present, larvae of A. jamesii, A. annularis and A. subpictus were found breeding.

P O O L S.

A number of stagnant pools in the town were examined and larvae of A. subpictus and A. culicifacies were found

D R A I N S.

It has been previously mentioned that the drains in the town are in a state of very bad disrepair. Many of these drains hold water most of the time as could be judged from the larvae and the larval skins present. Most of these found were culex. But the earthen drain carrying the sullage water from the extension to the Kodihalla (waste weir over-flow channel) had a number of pools in its bed and the following anopheline species were found breeding in this drain.

1. A. tesselatus
2. A. hyrcanus
3. A. subpictus
4. A. culicifacies
5. A. fluviatilis

64

ADULT MOSQUITOES.

A number of houses and cattle sheds were visited both in the old town and in t e extension for the collection of adult anopheline mosquitoes. The anophelines collected by species in the town and in the extension are given in Table IV.

T a b l e IV.

ANOPHELINE MOSQUITOES FROM HOUSES AND CATTLE SHEDS.

	Old Town	Extension
1.	A. subpictus	
2.	A. Vagus	
3.	A. stephensii	1. A. subpictus
4.	A annularis	2. A. stephensii
5	A. culicifacies	
6.	A. fluviatilis	

DISCUSSION.

From a study of the splen rates by blocks as given in table III it is seen that the Electric colony, the Brahmin street and the Vokkaligar stmet show spleen rates round about 10 per cent and that the extension is by far the healthiest showing a spleen rate of only 1.3 per cent. The spleen rateof 7.1 xxx for the whole town does not very materially differ from the spleen rate of 4.3 for the same town in 1932. It is thus seen that though villages just within a few miles of Mandya show an increase of spleen rates from almost zero to between 70 and 80 per cent, Mandya has not yet been affected. From a study of the larval catches it is seen that the malaria carrier species A. stephensii A. culicifacies and A. listoni ar breeding and the adult females of all the three speies have been found in the houses and cattle sheds. But on analysing the actual numbers collected, it is found that only 60 anopheline females of all species have been

have been collected from 20 houses and cattle sheds visited. Of these the anophelines of the dangerous group are 30 or 1.5 per house or cattle shed. It is just possible that the density of these carriers is not sufficient to bring about a more wide spread prevalence of malaria in Mandya, specially as all the factors such a Tem erature humidity, a non-immune population and a reservoir of parasites, are extremely favourable.

It therefore becomes necessary to take preventive measures early so as to prevent the possibility of any more intensive breeding of these carrier xxxxxx species. It should be quite obvious that it is always easier to prevent any disease from getting a foot hold, than to try and control it after it has become wide spread.

[illegible]

Tanks.

The Mandya tank is now fed by a branch from Irwin Canal and irrigates about 600 acres of land. In view of the extensive surface it affords for anopheline breeding it is necessary to breach this tank and other arrangements made for providing water to the lands below the tank. It is suggested that the paddy fields below the tank and the sugar factory be supplied with the necessary water by means of a direct channel.

A pond near the waste weir adjacent to the Brahmin street may be provided within the tank bed to afford the necessary convenience for bathing and washing. Any possible anopheline breeding in this pond can easily be controlled by stocking it with fish. The rest of the tank bd it is suggested may be utilised for play grounds and as grazing fields for the cattle in the neighbouring villages. Wet irrigation in the tank bed should not be permitted on any account.

MOSABALLI TANK.

This tank is within a furlong of the new extension and is always dangerous. It is irrigating only about 16 acres of wet land. This tank should be breached and it is understood that there is no serious impediments to this step being taken. The wet lands under the tank may all be converted into garden land, perhaps with greater profit.

WELLS AND PONDS.

All the wells and ponds within the municipal area should be stocked with the larvicidal fish. There is already a central hatchery and the stocking of the wells should be very easy.

The fish are liable to die off in the wells from about 6 to 8 months after they have been introduced into them. An agency to regularly inspect the wells and for stocking them with fish whenever necessary should be established.

CHANNEL.

The waste weir over-flow channels from the Kandya and the Pallamalli tanks have to be treated with Paris Green. This work can be entrusted to the Health Officer, Rural Health Unit, if the necessary staff is provided It is expected that 2 fieldmen and an allotment not exceeding Rs.500/- for Paris Green will be quite ample to control all anopheline breeding in these channels This will have to be provided for by the Municipality. The estimated cost for staff and paris green is based on the assumptionthat the two tanks referred to will be breached.

POOL.

All these pools will have to be paris greened. The staff with the alletment proposed, can caontrol the whole area.

D R A I N S

As far as the anopheline breeding is concerned, the only drain that requires attention is the one carrying the sullage water from the extens on through the town, to the waste weir halla. This will have to be properly graded and built up in stone. It is understood that this work is sanctioned and will soon be taken up.

It is further suggested that the breaching of the tanks and the location of the bathing pond recommended be undertaken under the advice of the Sanitary Engineer. The supervision of anti-malaria activities should be under the control of a trained Health Officer and it is desirable the Health Officer in charge of the Rural Health Unit be entrusted with this work, as he will always be trained in anti-malaria work.

Sd/- B Ananthaswamy Rao,
Superintendent,
Bureau of Epidemiology

"C o p y"

B Ananthaswamy
Director of Health.

BLVS/10

Appendix F G—1]

SUBJECT

68

Section ml

File No 172-35

Serial No 4

Diary No of letter replied to

No L 8452

To - The D.C

Mysore Dist

General and Revenue Secretariat

( )

the *193*

Sir,

With reference to para 2 of the Govt letter no L 7946/ml 172-35-3 dated 30/4/36 -in regard to the nomination of the Health Officer, Rural Health Unit, Mandya as a member of the Mandya Taluk Board, I am directed to enquire if a Health Committee has been formed by the Mandya Taluk Board and if so, who its members are. I am

Date of issue 8-4-36

Signed by Mr A S

List of enclosures

Copied by

Examined by

WD 03601—GPB—30 000—28 9 35

to request you to furnish ~~information~~ your name as [illegible]
in case a Health Committee is in
existence ~~to include~~ the Health
Officer, ~~in the Committee~~ if he is not there
already

It may also be well to state
if it is ~~impossible~~ possible, necessary to replace the
Assistant surgeon by the Health Officer
on the M. C. now

I have the
honor to be
Very respectfully
Your obt. Servt.

GOVERNMENT OF HIS HIGHNESS THE MAHARAJA OF MYSORE

General and Revenue Secretariat

Dated Bangalore 8th May 1936

No L 8492

From Ml172 35-4

The *Secretary to the Government of His Highness the Maharaja of Mysore*
Development Department

To

The Deputy Commissioner
Mysore District

Sir

With reference to para 2 of this office letter No L 7926/ Ml 172-35-3 dated 30th April 1936 in regard to the nomination of the Health Officer Rural Health Unit Mandya as a member of the Mandya Town Municipal Council, I am directed to enquire if a Health Committee has been formed by the Mandya Town Municipal Council and if so who its members are I am to request you to furnish your opinion as to whether in case a Health committee is in existence the Health Officer may not be included in it if he is not there already

It may also be kindly stated if it is possible to replace the Assistant Surgeon by the Health Officer on the Municipal Council now

I have the honour to be,
Sir
Your most obedient servant

for Secretary to Government
Development Department

Appendix F G—1]

SUBJECT

71

2851

Section ml

File No 172-35

Serial No 3

Diary No of letter replied to

No L 7926

To

The Deputy Comr

Guntur Distt

General and Revenue Secretariat

)

the 193

Date of issue 20 - 4 - 1936

Signed by Mr Q S

Sir,

With reference to your letter no D3 2386/35-36 dated the 5th March 36, re antimalaria work in the Nandyal Sub Div, I am directed to state that your proposals (1) for the entertainment of two extra Fieldmen in the Rural Health Unit for this work and (2) for the annual grant of Rs 250/- from Govt for the purchase of Paris Green for the Sub Division

List of enclosures

Copied by

Examined by

WD 03601—GPB—30,000—28 9 35

-tects the same work in that
Taluq. have not been agreed to
by the Director of Health
Govt accept his view that
the antimalaria work should
be placed under the control
of the Health Officer, Rural unit
Mandya, the entire cost of the
staff, Rs 6000 Grant, being met
borne by the Municipality
I am accordingly to request you
to submit definite detailed proposals on this behalf
in consultation with the
Mandya Taluk Bd for
orders of Govt very early

The question of nominating
the Health Officer, Rural Health unit,
Mandya as a member of the
Mandya Taluk Bd is being
separately examined

I have etc
Sd/-
Secy to Govt
Health

Memo No Ms 7927 dt 28.4.36
Copy with to the Dir of Health
for info

Sd/-
Secy to Govt
Health

GOVERNMENT OF HIS HIGHNESS THE MAHARAJA OF MYSORE

General and Revenue Secretariat

Dated Bangalore 20th April 1936

No L 7926
Mi 172-35-3

From

The *Secretary to the Government of His Highness the Maharaja of Mysore*
Development Department

To

The Deputy Commissioner,
Mysore District.

Sir,

With reference to your letter No. D 3.2386/35 36 dated the 5th March 1936, regarding antimalaria work in the Mandya Town Municipality, I am directed to state that your proposals (1) for the entertainment of two extra fieldmen in the Rural Health Unit for this work and (2) for an annual grant of Rs.250/- from Government for the purchase of Paris green in connection with the same work in that Municipality have not been agreed to by the Director of Health. Government accept his view that the antimalaria work should be placed under the control of the Health Officer, Rural Health Unit, Mandya, the entire cost of the staff, Paris Green etc, being borne by the Municipality.

I am accordingly to request you to submit definite and detailed proposals in this behalf in consultation with the Mandya Town Municipal Council for orders of Government very early.

The question of nominating the Health Officer, Rural Health Unit, Mandya as a member of the Mandya Town Municipal Council is being separately examined.

I have the honour to be,
Sir,
Your most obedient servant,

Sd M Venkatanaranappa
Secretary to Government,
Development Department

Memo No. L 7927 d 20 4/36

Copy of the above is forwarded with compliments to the Director of Health in Mysore for information.

By order,

TD/ Asst
for Secretary to Government,
Development Department.

[illegible—1]

[illegible]OT

76

2815

Section

File No

Serial No.

Diary No of letter replied to

No L7928 En 11

To The ~~Secretary~~ Chief Engineer K.R.S. Works

General and Revenue Secretariat

( )

the *193*

Date of issue 20 4 36

Signed by M. A. S

D

Sir,

With reference to the correspondence ending with your letter No 2037/KRS dated the 17th June 1936 regarding the depletion of the extra storage in the Mandya Tank, I am directed to forward herewith extract of paras 1 to 3 from the enclosed note No C 10927D

List of enclosures

Copied by

Examined by

WD [illegible]—GPB—[illegible]—12-6-34

dated the 26th March 1936
of the Director of Health on
the subject of breaching
the Mandya & Hosahalli Tankbed
and to state that it is learnt that
arrangements made to draw off
water from the Mandya
tank from time to time by
means of an automatic
Syphon have not proved to be
effective, as a means of preventing
the breeding of mosquitoes that
the question of breaching the tank
or of reducing ~~the tank~~ its capacity
and water spread has therefore to
be seriously considered I am
directing to request you to examine further
this point as well as items 2 & 3
refd to in the Director's note accompanying
and to take needful action thereon
The results of action taken may be kindly
intimated to Govt

I have etc

Secy to Govt
Agri & Dy Dir

1929 30 d
Copy wc to
Health
Mysore

GOVERNMENT OF HIS HIGHNESS THE MAHARAJA OF MYSORE

General and Revenue Secretariat

No L 7928 Enl

Dated Bangalore 28th April 193 6

From

The *Secretary to the Government of His Highness the Maharaja of Mysore*
Development Department

To

The Chief Engineer
Krishnarajasagara Works

Sir

With reference to the correspondence ending with your letter Lc 207/KRS. dated the 17th June 1935 regarding the depletion of the extra storage in the Mandya Tank, I am directed to forward herewith extract of paras 1 to 3 from the unofficial note No C 1092-10 dated the 26th March 1936 of the Director of Health on the subject of breaching the Mandya and Hosahalli tanks etc and to state that it is learnt that the arrangements made to draw off water from the Mandya tank from time to time by means of an automatic syphon have not proved to be effective, as a means of preventing the breeding of musquitoes and that the question of breaching the tank or of reducing its capacity and water spread has therefore to be seriously considered. I am accordingly to request you to examine further this point as well as items 2 and 3 referred to in the Director's note accompanying and to take needful action thereon The result of action taken may be kindly intimated to Government.

I have the honour to be,
Sir,
Your most obedient servant,

TD

for Secretary to Government,
Development Department.

L 7925-30 d 20 4 36

Copies to Dir Mysore
Dir of Health

5270

Office of the Deputy Commissioner
Mysore District

No D3. 2386/35-36
Fncl Two

Dated Mysore the 13th May 1936

ml 172-35-5

FROM

J Appaji Gowda, Esq , B A , (Homs)
DEPUTY COMMISSIONER
MYSORE DISTRICT MYSORE

To

M Venkatanaranappa, Esq , B A ,
SECRETARY TO THE GOVERNMENT OF MYSORE
(Development Department) BANGALORE

SIR

Anti-malaria work in the Mandya Town Municipality

With reference to your Letter NO L 7026/M1 172-35-3 dated 20th April 1936, re the above, I have the honour to forward herewith report NO C 332/35-36 dated 9th May 1936, from the President of Mandya Town Municipal Council, together with an extract of the Council's Resolution in the matter The Municipal Council at the Special Meeting held on 1st May '36, have resolved that one fieldman for the antimalaria work may be provided from the existing Municipal Establishment and only one additional hand be entertained during 1936-37 and a sum of Rs 500/- be allotted for meeting the cost of paris green etc , during 1936-37 The cost on this account has been proposed to be met from the surplus of receipts over expenditure as per Budget Estimates of 1936-37, which have been submitted to Government with this Office NO D3 Per 51/35-36 dated 1st May 36 for sanction

I request that sanction of Government may kindly be obtained to the proposal of the Municipal Council The Director of Health in Mysore, Bangalore, may kindly be instructed to take up the work at once

I have the honour to be,
Sir,
Your most obedient servant,

Deputy Commissioner,
Mysore District

No 6332 35-36
Enc out

OFFICE OF THE PRESIDENT
TOWN MUNICIPAL COUNCIL
MANDYA
Dated 9-5-1936

75

From

THE PRESIDENT
TOWN MUNICIPAL COUNCIL
MANDYA

To

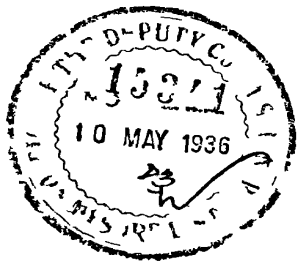
THE DEPUTY COMMISSIONER
MYSORE DISTRICT
MYSORE.

Sir

Re measures for the control of malaria in Mandya Town

With reference to your memo no Dy - 2386/35-36 dated 25-4-36 regarding the above and requesting that definite and detailed proposals may be submitted I have the honor to state that the matter was considered by the Town Municipal Council at a Special meeting held this morning A copy of the resolution embodying the proposals of the council is enclosed herewith I request that sanction of Government may be obtained thereto at an early date The Deputy of Health may also be requested to instruct the Health Officer of the Rural Health Unit for taking up the control work at an early date

I have the honor to be
Sir
Your most obedient Servant
Executive Officer
Mandya



Copy of the resolution of the Town Municipal Council Chamrajpet dated 1-5-36

Official members

Present 2 Absent 1

Non Official members

12 6

xx xx xx xx

) మంత్రదల్లి మలేరియా నంబంధిసిదల్లి కెలసవన్ను కొడువుదు

The Health Officer of the Rural Health unit was present and explained the proposals required for the work. It is resolved that one Bulldozer for the anti-malaria work be provided from the existing municipal establishment and one additional bulldozer sanctioned during 36-37 and a sum of Rs 6000/- be provided for meeting the cost of mats-green etc during 36-37 the cost of the same being met from the

"the surplus of the receipts over expenditure as per budget estimates of 36-37 already submitted the Secretary Officer may be requested to arrange for the work immediately in anticipation of the sanction of Government

xx xx (Sd) E V ganapathy
Secretary

"Copy"

Executive Officer

President Municipal Council
Mus

A. R. S. App. F VI—G 2]

SUBJECT

Diary No of letter replied to

General and Revenue Secretariat

( )

the *193*

Date of issue 4-6- 1936

signed by M A S

May this be—

(i) printed ?

(ii) treated as a standing order ?

(iii) published in the Gazette English Part ?

(iv) translated ?

(v) placed at the disposal of the press ?

(vi) published in the Gazette Kannada Part ?

6

Section ml

File No 172-35

Serial No 6

Proceedings of the Government of His Highness the Maharaja of Mysore

Read— Letter no D3 2386 /35-36 dated the 13th May 1936 from the Deputy Com. Mysore Dist requesting sanction to the resolution of the Mandya Town Municipal Council to spare the services of one fieldman for the existing municipal cart bullock and to entertain an additional hand at an extra cost [redacted] per annum for the said purpose.

Order thereon—No

in the Nandyal Taluk
with land to provide a
burial ground for the Hindu community
the Civil Surgeon Kurnool etc
for the Budget estimates
of the MLF for the year 1936-37 etc
the
order no 'L 9160-62 d 4-6-36
the proposal of the
Mandya Taluk Board
sanctioned
necessary provision should
will be made in this behalf while sanctioning the
Budget Estimates of the MLF
for the year 1936-37
The services of the Rural
Medical Officer will be placed at
the disposal of the Health Officer
Rural Health Unit The Director
of Health is requested to make necessary arrangements
to instruct
the said officer to visit
to make
Copied
and the malaria
operations
work very carefully
examined by

[illegible] 24/5/36

[illegible]

WD 0113—GPB—15,000—13 8 34

[illegible]

List of Enclosure

Proceedings of the Government of His Highness the Maharaja of Mysore

Read:-

Letter No.D3-2386/35-36 dated the 13th May 1936 from the Deputy Commissioner, Mysore District, requesting sanction to the resolution of the Mandya Town Municipal Council to spare the services of one fieldman out of the existing municipal establishment and to entertain an additional hand at an extra cost of Rs.120/- per annum for the anti-malaria work in the Mandya Town and to provide a sum of Rs.500/- for meeting the cost of Paris Green etc., in the Budget Estimates of the Municipality for the year 1936-37 etc.

ORDER No: L 9160-62 Rm 172-35-6

Dated, Bangalore, the 2nd June 1936.

The proposal of the Mandya Town Municipal Council is sanctioned.

2. Necessary provision as above will be made in this behalf while sanctioning the Budget Estimates of the Municipality for the year 1936-37.

3. The services of the two fieldmen will be placed at the disposal of the Health Officer, Rural Health Unit. The Director of Health is requested to make necessary arrangements for starting the antimalaria operations very early.

Athmaram
For Secretary to Government,
Development Department.

To

The Deputy Commissioner, Mysore District.
" Comptroller to Government.
" Director of Health in Mysore.

D.R.6

13

Office of the Deputy Commissioner,
Mysore District

No D3 2386/35-36
Encl : One

Dated Mysore the 27th June 1936

FROM

T G Rama Iyer, Esq , B A ,
DEPUTY COMMISSIONER
MYSORE DISTRICT MYSORE

To

M Venkatanaranappa, Esq , B A ,
SECRETARY TO THE GOVERNMENT OF MYSORE
Development Department, BANGALORE

SIR,

Nomination of the Health Officer, Rural Health Unit, Mandya, as a member of the Mandya Town Municipal Council

With reference to your letter No L 8492/M1 172-35-4 dated 8th May 1936, regarding the above, I have the honour to state that the Municipal Council in their resolution dated 31st January 1936 have reconstituted the Health Committee, consisting of the marginally noted five members, the Assistant Surgeon of the Local Fund Dispensary, being the Convenor

1 Assistant Surgeon, Local Fund Dispensary, Mandya
2 Mr N A Singlachar
3 P Venkatagiriah
4 " M L Linganna
5 J Deviah

In accordance with Government Notification No L 4179/M1 50-33-21 dated 18th/19th December 1933, the Assistant Surgeon in charge of Local Fund Dispensary and the Executive Engineer, No V, Irwin Canal Division, Mandya are Ex-officio Members under Section 9(1)(b)(i) of the Town Municipalities Regulation of 1933

The President reports that the present members may be continued and the Health Officer, Rural Health Unit, Mandya be however co-opted as a member

The copy of the report from the President, is enclosed

I have the honour to be,
Sir,
Your most obedient servant,

DEPUTY COMMISSIONER,
Mysore District

Letter No C 332/35-86 dated 18th June 1936 from the President, Town Municipal Council, Mandya, to the Deputy Commissioner, Mysore District

---

Re nominating Health Officer, Rural Health Unit as one of the Municipal Councillor

---

With reference to your Memo No D3 2386/35 dated 12th May 1936 regarding the above, I have the honour to state that the Municipal Council in their resolution No 4 dated 31st January 1936 have reconstituted the Health Committee as noted in the margin, the Assistant Surgeon being the Convenor

1 Assistant Surgeon, Local Fund Dispensary, Mandya
2 Messrs N A Singlachar
3 P Venkatagiriah
4 M L Linganna
5 J Deviah

Under the Town Municipal Regulation there can be only two Ex-officio Members and the Government have in their Notification No L 4179/M1 50-33-21 dated 18/19th December 1933 appointed the following as Ex-officio Members The present members may I think continue, ~~and under~~ the Health Officer, Rural Health Unit, being however be co-opted as a Member under Section 16(b)

1 Assistant Surgeon in charge of dispensary at Mandya

2 The Executive Engineer, No V, Canal Division, Mandya

Copy"

Deputy Commissioner,
Mysore District

NRS

Jail F G—1}

SUBJECT ..

55

Section 9

File No 172-35

Serial No 7

Diary No of l tter replied to

No L 5350

To

The Dt, Mysore

General and Revenue Secretariat

( )

the *193*

the commissioner ending letter

I to reference of your letter no 03

2386/35-36 dt 27-6-36 re the

nomination of the Health officer,

Rural Health unit, Mandya, as a

member of the Mandya Town Municipal

Council, I am directed to state that the

post, Mandya Town Municipal may be

asked to take necessary action

to co-opt the Health officer,

referred to as a member of the Health

Committee of the Municipal till the

date of the next municipal election

Municipal by 1st Jan 1937

Date of issue 16.7.36

Signed by

List of enclosures

Copied by

Examined by

Shamachar

L 13/7/36

for Secretary

WD 08601—GPB—80,000—23 9-85

Memo No L 5351 dt 16/7/36

Copy to the Director of

Health Services

L 13/7/36

GOVERNMENT OF HIS HIGHNESS THE MAHARAJA OF MYSORE

General and Revenue Secretariat

Dated Bangalore 16th July ,1936

No L 530

From

The *Secretary to the Government of His Highness the Maharaja of Mysore*
Development Department

To

The Deputy Commissioner,

Mysore District.

Sir

With reference to the correspondence ending with your letter No.D3.2386/35-36 dated 27th June 1936 regarding the nomination of the Health Officer, Rural Health Unit, Mandya, as a member of the Mandya Town Municipal Council, I am directed to state that the President, Mandya Town Municipality may be asked to take necessary action to coopt the Health Officer, referred to as a member of the Health Committee of the Municipal Council till the date of the next reconstitution of the Municipal Council viz., 1st January 1937.

I have the honour to be,

Sir,

Your most obedient servant,

Sd. M Venkatanaranappa,
Secretary to Government,
Development Department.

Memo No L 531

Dated, Bangalore, 16th July 1936.

Copy of the above is forwarded with compliments to the Director of Health for information.

By Order,

Secretary to Government,
Development Department